

NAVY MEDICINE

July-August 1996



**Surgeon General of the Navy
Chief, BUMED**
VADM Harold M. Koenig, MC, USN

Deputy Chief, BUMED
RADM S. Todd Fisher, MSC, USN

Chief, Medical Corps
RADM Frederic G. Sanford, MC, USN

Editor
Jan Kenneth Herman

Assistant Editor
Virginia M. Novinski

Editorial Assistant
Nancy R. Keese

NAVY MEDICINE, Vol. 87, No. 4, (ISSN 0895-8211 USPS 316-070) is published bimonthly by the Department of the Navy, Bureau of Medicine and Surgery (MED 09H), Washington, DC 20372-5300. Periodical postage paid at Washington, DC.

POSTMASTER: Send address changes to *Navy Medicine*, Bureau of Medicine and Surgery, ATTN: MED 09H, 2300 E Street NW, Washington, DC 20372-5300.

POLICY: *Navy Medicine* is the official publication of the Navy Medical Department. It is intended for Medical Department personnel and contains professional information relative to medicine, dentistry, and the allied health sciences. Opinions expressed are those of the authors and do not necessarily represent the official position of the Department of the Navy, the Bureau of Medicine and Surgery, or any other governmental department or agency. Trade names are used for identification only and do not represent an endorsement by the Department of the Navy or the Bureau of Medicine and Surgery. Although *Navy Medicine* may cite or extract from directives, authority for action should be obtained from the cited reference.

DISTRIBUTION: *Navy Medicine* is distributed to active duty Medical Department personnel via the Standard Navy Distribution List. The following distribution is authorized: one copy for each Medical, Dental, Medical Service, and Nurse Corps officer; one copy for each 10 enlisted Medical Department members. Requests to increase or decrease the number of allotted copies should be forwarded to *Navy Medicine* via the local command.

NAVY MEDICINE is published from appropriated funds by authority of the Bureau of Medicine and Surgery in accordance with Navy Publications and Printing Regulations P-35. The Secretary of the Navy has determined that this publication is necessary in the transaction of business required by law of the Department of the Navy. Funds for printing this publication have been approved by the Navy Publications and Printing Policy Committee. Articles, letters, and address changes may be forwarded to the Editor, *Navy Medicine*, Bureau of Medicine and Surgery, ATTN: MED 09H, 2300 E Street NW, Washington, DC 20372-5300. Telephone (Area Code 202) 762-3244, 762-3248; DSN 762-3244, 762-3248. Contributions from the field are welcome and will be published as space permits, subject to editing and possible abridgment.

For sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.

NAV MED P-5088

NAVY MEDICINE

Vol. 87, No. 4
July-August 1996

Department Rounds

- 1 Corpus Christi's Quest for the Gold

Features

- 4 Telemedicine Enters the Fleet
LCDR C.F. Baxter, Jr., MC, USN
LT D.G. Goodspeed, MSC, USN
CDR J.W. Mills, MC, USN
- 8 Naval Hospital Rota, Spain: Community-Oriented Primary Care Based on a Family Practice Model
CDR D. Mason, MC, USN
CAPT D. Racicot, MC, USN
- 10 Navy Medical Department's Strategic Planning Process
S.B. Mayo, RRA, CPHQ, Ed.D.
G. Atkinson
J.R. Durham, Jr., MBA
- 16 A Decade of Infectious Disease Research: NAMRID Lima/Iquitos, Peru
D.M. Watts, Ph.D.
- 20 Borrowed Combat Boots
CDR T. Miller, Jr., MC, USNR (Ret.)
- 22 Strategies for Quality in Medical Logistics: Optimizing Customer Satisfaction
LT M.A. Anaya, MSC, USN
LT S.J. Wyrsh, NC, USN

Notes and Announcements

- 3 Provision of Mental Health Services by Reserve Clinical Social Workers
- 25 Naval Medical Information Management Center Highlights

In Memoriam

- 26 ADM Jeremy Boorda, USN

- 28 Naval Medical Research and Development Command Highlights

A Look Back

- 29 Navy Medicine 1919

COVER: Satellite technology is now linking ship's medical departments with medical specialists ashore. How telemedicine works aboard USS *George Washington* is featured on page 4. Cover art by Moses Jackson, NSHS, Bethesda, MD.

Corpus Christi's Quest for the Gold

Naval Hospital Corpus Christi, TX, didn't wait for the torch to reach Atlanta this July. Their Team Olympic Competition ignited in February with the first of 25 scheduled events.

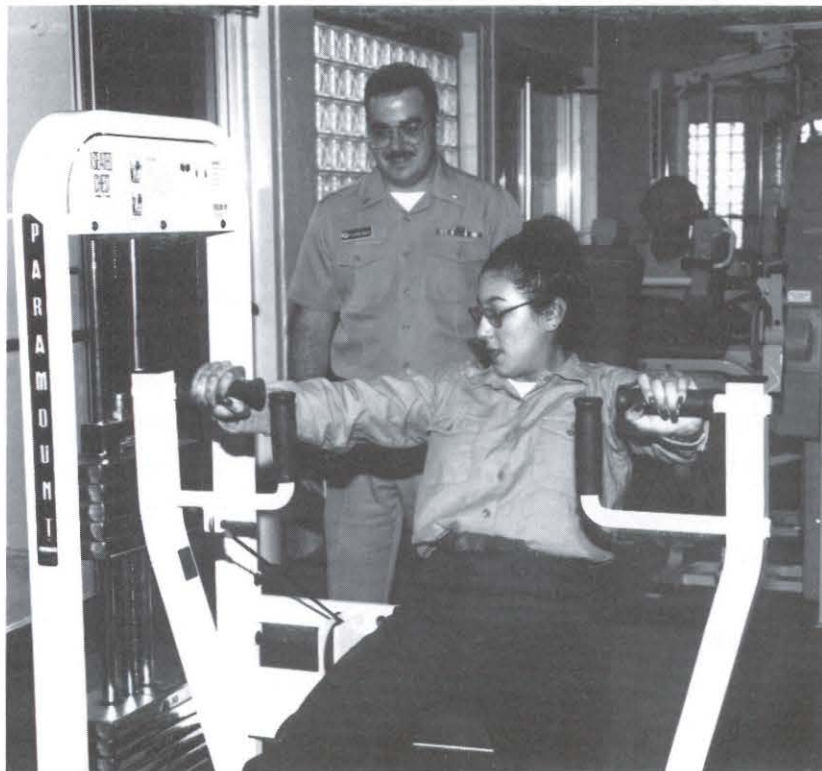
Taking the official Games calendar of the Atlanta Olympics as their model, the hospital's Health Promotion Department developed a 5-month team competition open to all military and civilian hospital employees. Over 15 teams, comprised of 6-20 members each, entered the Games.

Competition includes weight lifting, swimming, athletics (10K relay), cycling, and volleyball. Modified events became the norm, particularly events such as judo, boxing, pentathlon, and wrestling. As an example, wrestling, which ends the Team Olympic Competition, will surface as a

two-person "King of the Mountain" pool event during the June celebration of the Hospital Corps birthday. Last team standing in the pool wins!

The weekly events were mostly

team presented four members (mixed gender, a rule) where each member shot free throws and lay ups from a 1-, 2-, and 3-point zone for 1 minute. The members' scores are totaled to-



LTJG Waldo Ferreras, head of Operating Management Department, looks on as PC3 Carmen Ramirez from General Service Division, works out.

programmed during the lunch period with each team scheduled over a 10-15 minute timeframe. Basketball, for instance, became a sport where each

together to obtain the overall team score. The basketball gold medalist team, The Curæ from the Pharmacy Department, beat the competition with a

score of 90. The CPO Backbones came in second with 85, and winning the bronze was Undermanned, the OMD team with a team total of 81. Each event will have a gold, silver, and bronze team winner. The winning team will collect 4 competition points for the Game, the second place team—3 points, the third place team—2 points, and all teams who compete will gain 1 point per Game event. At

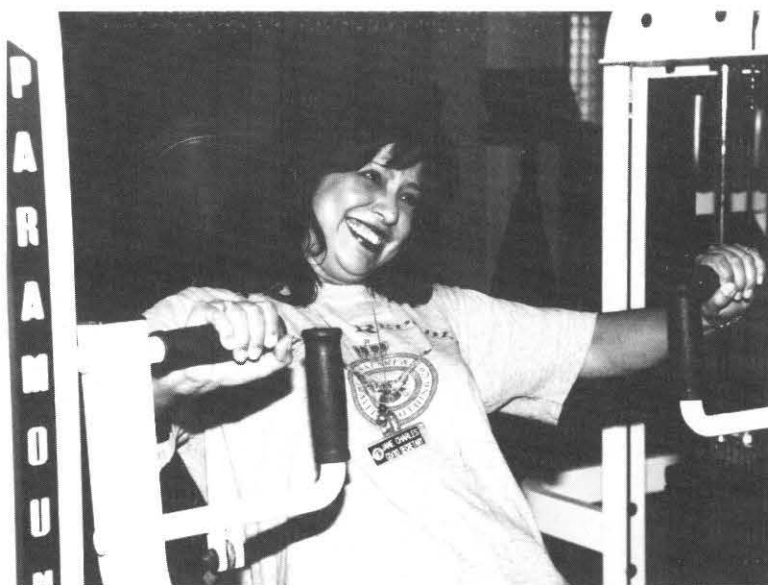
Assessment Enrollment Review (HEAR) last spring, the hospital command was able to get an early overall picture of command health.

Recognizing that healthy lifestyle habits do affect the overall mission of Naval Hospital Corpus Christi, CAPT Barina set forth to strengthen the Health Promotion Department by combining the Command Fitness program into the department. Health Pro-

men serving as volunteer role models, establishing into the ambulatory clinics the public health clinical services model—Put Prevention Into Practice, and mini-health fairs targeted to at-risk populations. A recent health and fitness day during Black History Month isolated four potential candidates for heart attack or stroke. These individuals were immediately referred to the emergency room.

Recently, the Health Promotion Department added yet another program to the hospital's agenda. With the knowledge that over 50 percent of all illnesses and deaths in the United States are lifestyle related, Naval Hospital Corpus Christi is drawing on its committed staff to present an 18-part seminar series on "The Mind/Body Connection." This series will be presented biweekly and will highlight valuable skills

Mrs. Jane Charles, secretary to the CO and XO, takes advantage of the fitness program at Naval Hospital Corpus Christi.



the end of the 5-month challenge, competition points will be totaled for the overall Team Command Olympics Gold Medal title.

Under the leadership of Commanding Officer CAPT Fred G. Barina, Jr., Naval Hospital Corpus Christi is experiencing the genesis of a health and fitness-based mindset. Ever cognizant of the necessity for a healthy and ready force, CAPT Barina has put this mission into play. Serving as a pilot site for TRICARE contractor Foundation Health Federal Services' Health

motion was already actively involved in scheduling programs and activities in the nutrition, substance abuse, tobacco cessation, and stress management areas.

Never one to settle into the comfort zone, Naval Hospital Corpus Christi remains on the cutting edge of health and wellness. Command programs include a monthly lipid clinic administered by area retirees, a strong youth outreach program in local schools dealing with tobacco and substance abuse prevention with young corps-

in gaining control over the body's well-being.

When asked what's next, Susan Watts, the hospital's health promotion coordinator, mentioned that the Command Master Chief, HMC M.J.C. Herrera, and Command Fitness Coordinator, HMC Rickey Dunbar, were interested in a 90-mile command bicycle ride around the Corpus Christi Bay. Readiness? This command is ready for anything! □

—Health Promotion Department, Naval Hospital Corpus Christi, TX.

Provision of Mental Health Services by Reserve Clinical Social Workers

Evening mental health services for CHAMPUS-Eligible dependents became a reality this fiscal year at Naval Hospital Jacksonville, FL.

Through collaborative efforts of the Social Work Department and the Primary Care Center, a Naval Reserve licensed clinical social worker with psychological treatment expertise began seeing patients after 1800 two nights a week.

The development of the Social Work profession in the Navy has gradually evolved. Brought on board in the early 1980's to manage the Family Advocacy Program, social workers in MTFs (military treatment facilities) also assumed roles as department administrators, patient advocates, discharge planners, and counselors. The author's position evolved while he was on active duty at Pearl Harbor, HI, into a mental health provider position from 1980 to 1983. Using group, marriage, and family therapy skills, he was able to provide services to active duty members that had been available only on a limited basis.

The role of the social worker in the Naval Reserve has similarly evolved. Social workers in uniform augment MTF Social Work Department staffs in many of the areas mentioned above. Utilizing their administrative skills they have found success commanding Naval Reserve units and in patient administration billets. The author and another colleague in the Jacksonville community have held these positions, and found their professional skills useful in organizing and maintaining unit readiness.

COMNAVRESFOR INST 1576.9B (PRIMUS) and 1570.11 (NEDOP) enabled the provision of mental health provider services by a USNR Social Work officer. By allowing provider-type Medical Service Corps officers to drill an additional 30 drills per fiscal year, social workers could provide treatment sessions up to six per week. The author wrote a proposal with the assistance of the Naval Hospital Jacksonville Social Work Department head. The proposal involved the

cooperation and the inputs of the Ancillary and Medical Directorates, their subordinate departments, Social Work and Primary Care, and the officer in charge, Branch Medical Clinic Mayport, FL.

Primary Care agreed to provide space and other logistic support as staff allowed, such as receptionist support. The Social Work Department provided administrative support addressing issues such as credentialing, statistical gathering, quality assurance, and health promotion activities among others. The officer in charge of the Branch Medical Clinic Mayport allowed the use of the Community Counseling Center clerk-typist to assist scheduling appointments. It was the tacit understanding among all parties that this was a Reserve function and that the Reserves would bear the responsibility for operation.

The operational structure was geared to allow maximum accessibility. Health care providers were instructed to write consults to the Social Work Department via the CHCS system or instruct patients to be self-referrals by calling the CCC, Mayport, directly for an appointment.

Since its inception in October 1994, and as of 31 Jan 1995, the program has registered over 50 patient visits. Although suspension of the NEDOP program has reduced patient service availability to once a week, patients appear undeterred.

Presently the author is the sole provider, but there has been no letup in referrals. Moreover, the number of patient "no-shows" has been minimal.

The potential for the program appears limited only by the number of providers and hours available. The possibility exists for more social workers to become involved and for other Naval Reserve mental health providers in psychiatry and psychology to become program associates.

For further information about this Naval Reserve program contact CDR Antoniou at DSN 960-7186 or Commercial 904-270-7186.

Telemedicine Enters the Fleet

LCDR Charles F. Baxter, Jr., MC, USN
LT Darwin G. Goodspeed, MSC, USN
CDR John W. Mills, MC, USN

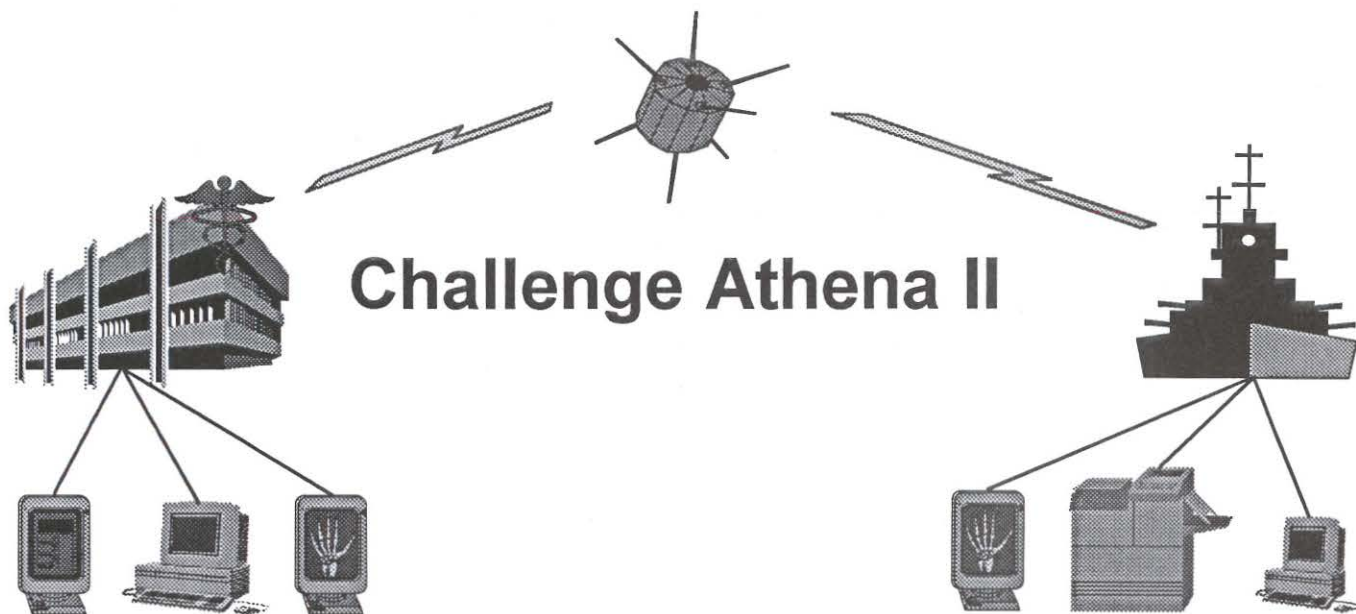
The role of telemedicine and teleradiology on an operational afloat naval platform was evaluated by the medical department during the maiden Mediterranean deployment of USS *George Washington* (CVN-73). This system allowed satellite transmission of visual data, images, and communications directly with the National Naval Medical Center (NNMC), Bethesda, MD.

Project Challenge Athena II was developed to explore delivery of high-

volume data to afloat warfighters. A subsystem was installed in the medical department in early March 1994. The initial system testing was done during fleet exercises in the Cherry Point Operating Area in April 1994. It was used as a regular tool to gain specialty assistance and consultation during the deployment of the ship to the Mediterranean Sea, Adriatic Sea, Red Sea, and the Arabian Gulf. This asset enhanced the medical care that was provided and made unnecessary

a number of medical evacuations (medevacs) of patients to shore medical facilities. Procedures were established that allowed the department to obtain routine X-ray readings, specialty consults on difficult cases, and to track patients that were returned to CONUS medical facilities for further evaluation and treatment.

Telemedicine is a concept that is widely used in the medical community.⁽¹⁾ It routinely encompasses medical specialty conferences, patient



interviews, and consultation services at many shore-based facilities. The Navy has developed a program that extends this concept to isolated units, mobile fleet hospitals, and ships. This has allowed access to specialty advisors and enhances the medical unit's ability to arrive at diagnoses and treatment regimes without delay to the patient.(2,3)

Navy vessels are unique in that there are periods when they are completely isolated, and operational commitments may prevent transporting patients to shore facilities. The versatility of a carrier to deploy to hostile regions or to areas where the level of medical care does not conform to U.S. standards puts greater responsibility on the medical department as the center platform for health care within the battle group. Many of the smaller surface ships and subsurface ships do not have medical officers on board and ancillary services are very limited. Medical care is very often provided by independent duty corpsmen.

The medical department on an air-

craft carrier has the ability to perform and provide many of the same services as a small community hospital (Table 1). There is wide diversity in training and there is sufficient personnel support to provide a wide range of medical care. However, placing specialists on board each ship is neither practical nor cost-effective. Having the ability to communicate visual information and data to a specialist expands the department's ability to capitalize on the utilization of assets already on station.

Table 1
Services Available on CV/CVN

Pharmacy
Clinical Laboratory
Operating Room
Intensive Care Unit
Radiology Suite
Physical Therapy
Optometry
Aviation Medicine
Biomedical Repairs
Burn Tank
Preventive Medicine Division

Prior to the deployment, members of *George Washington's* medical department met with several representatives of specialty services at NNMCC. The types of cases most likely to be presented were discussed and procedures were developed for requesting evaluation. In addition, the radiology department would read a number of routine X-rays monthly. Consultations requested would include summaries of the history, physical examinations, laboratory data, EKGs, X-rays, and any pertinent clinical information. Careful attention was taken to label all transmitted items with the patient's demographic information. Records were maintained on all responses with copies placed in the medical record clearly indicating that telemedicine had been used in conjunction with NNMCC.

Discussion

The initial use of the challenge Athena system was delayed the first few weeks of the deployment following minor technical problems and redistribution of circuits during a presi-

**IMAGES TRANSMITTED
(20 MAY 94 - 17 NOV 94)**

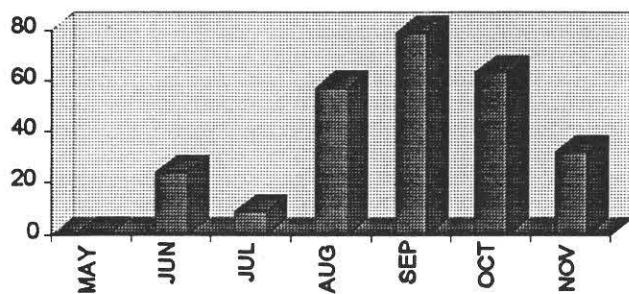


Chart 1

dential visit. Once these were corrected, data was easily transmitted (Chart 1). The system is user-friendly and a working knowledge of PC computers is adequate for most routine needs. The most frequently consulted services were radiology, orthopedic surgery, urology, and cardiology. Several orthopedic cases reviewed by specialists at NNMCC were suspicious bone lesions believed to be chondrosarcoma, a giant cell tumor, and a metastatic destructive pattern of a finger. These patients were expeditiously medevaced to shore facilities for complete diagnostic workups. Radiographic evaluations revealed two mediastinal lesions, later confirmed to be sarcoidosis and metastatic pulmonary embolism. These patients were then medevaced to CONUS where specialists were able

to discuss further diagnostic and therapeutic goals prior to the patient's arrival. In one tragic case a 21-year-old white male presented with nonspecific complaints of recent episodic mild back pain related to heavy physical activity. The pain persisted for 3 weeks despite conservative therapy of rest and anti-inflammatory medication. Further evaluation on board, including demonstration of an abnormal blood smear and chest radiographs led the diagnosis toward cancer. Confirmation and discussion with NNMCC using telemedicine resulted in immediate medevac to CONUS where he was diagnosed to have metastatic carcinoma. While this is not the routine case, this patient was offered timely specialty consultation while the ship was on station in the Arabian Gulf.

The majority of cases presented were fractures, renal lithiasis, and atypical EKGs in symptomatic patients. Five cardiac arrhythmia cases consisting of supraventricular tachycardia and symptomatic atrial fibrillation were treated and successfully managed on board. The cardiologists reviewed all laboratory data along with pre- and past treatment EKGs. This allowed for the deferral of medevacs for these patients. Routine appointments were scheduled when the ship returned to home port.

There appeared to be an unusually high incidence of renal lithiasis. Over 30 cases were evaluated during the 6 months deployment. The ability to perform quality intravenous pyelograms (IVP) on board, along with review by the radiologist and urologist, dramatically enhanced the department's ability to diagnose and provide appropriate treatment. In several cases the persistence of pain and hematuria raised the question of retained stones. Without the ability of the specialist to review all films and data it is clear this group of patients would have required medevac and further workup ashore.

Fractures of the lower extremities occur and are a unique problem on board ship. Treatment can be initiated; however, casting of a lower extremity presents a hazard to safe movement throughout the ship. Therefore, at the first opportunity, such patients were transferred to shore facilities for long-term rehabilitation.

The necessity for a warship to become isolated from other ships and from coastal waters at times requires it to function as a completely independent self-serving platform. The medevac system has been the sole capability for acquiring more sophisticated patient workups and consultation for many years. Placing a patient

**MEDEVACS ON 'MED' DEPLOYMENTS
(1990-1994)**

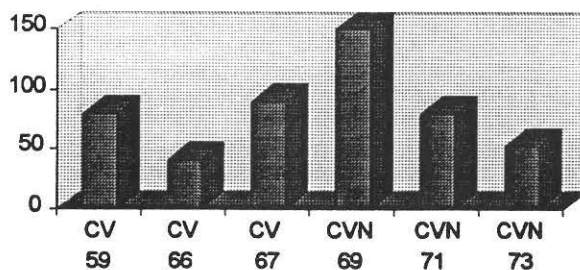


Chart 2

PATIENTS EVALUATED
(20 MAY 94 - 17 NOV 94)

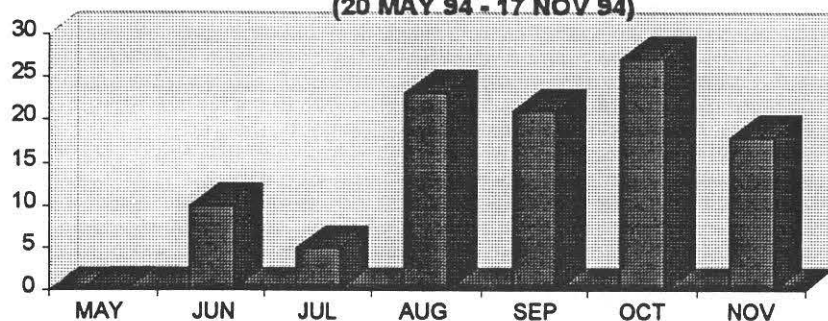


Chart 3

within this system requires planning and coordination with several ship's departments and prior arrangements with the receiving shore facility. The hazards and risks of transporting a patient must always be taken into consideration, and helo transport at night presents additional unique problems. There will be instances when the patient's condition precludes transport by aircraft and the medical department must utilize all its available assets effectively.

Another key element to consider with medevacs is the availability and frequency of flights that can transport patients. In many operating areas air transportation is strictly regulated and medevac patients may have long periods of layover waiting for scheduled flights, unless there is an emergent medical need to divert a flight. This can delay the evaluation and initiation of treatment. The number of medevacs for Atlantic Fleet carriers are listed in Chart 2.

The cost associated with a medevac includes the actual expense to transport and lodge a patient until either returned to the command or a medical board/limited duty board is dictated. The tangible cost of a medevac ranges from \$400 to \$4,000. The variance is primarily a function of the proximity of the ship to the requested specialty care. A patient requiring an internal

medicine evaluation may be able to receive treatment in the operating theater and be returned to the command, but a patient requiring an orthopedic evaluation may have to travel to CONUS for the definitive care.

Another important aspect of cost associated with a medevac is the loss of a crewmember to the work force. This cost is much more difficult to quantify and often has a more far-reaching effect on the command's operational readiness and ability to attain its mission. Of the 106 patients evaluated using telemedicine during the deployment (Chart 3), clearly medevac was able to be deferred on 31 cases based on data received from specialties at NNMC. Operational commitment prevented the routine use of the medevac system at times throughout the deployment. It was very reassuring to have the assistance of NNMC in managing cases when medevac was not a viable alternative.

Conclusion

The goal of telemedicine in the operational afloat unit includes:

- the increased utilization of the ship's organic medical department resources,
- reduced delays in initiating medical treatment,

- obtaining more timely specialty consultations,
- efficiently utilizing of and decreasing the expense, real and intangible, of the medevac system, and
- preventing interruption of the ship's operational assignment.

The value was quickly appreciated and gave the department the "sense" of not being isolated from the rest of the medical community. There was better access to specialist's opinions. We were clearly able to provide the crew with extended medical care and obtain answers to questionable radiographs and difficult clinical cases in a timely manner. As the Navy's telemedicine program continues to expand, more uses are being developed which will allow deployed and isolated units to keep up with the rapidly changing and advancing medical field and enhance the delivery of high-quality medical care to our deployed forces.

References

1. Rasmussen S, Rasmussen WT. Remote medical diagnosis system (RMDS) concept. *J Med Sys.* 1982;(5)6.
2. Conrath DW, Dunn E, et al. A preliminary evaluation of alternative telecommunications systems for the delivery of primary health care to remote areas. *IEEE Trans Commun.* October 1975.
3. Rasmussen WT, Stevens I, Hayes PD, West J. Remote Medical Diagnosis System (RMDS) Advanced Development Model (ADM) At-Sea Test Results. *NOSC TR 690.* January 1982. □

Dr. Baxter is General Surgeon at U.S. Naval Hospital Yokosuka, Japan. LT Goodspeed is in the Master of Health Care Administration Program, Baylor University, San Antonio, TX. Dr. Mills is Wing Flight Surgeon, Aircraft Division, Naval Air Warfare Center, Patuxent River, MD.

Community-Oriented Primary Care Based on a Family Practice Model

CDR Don Mason, MC, USN
CAPT Dave Racicot, MC, USN

This is Navy medicine's vision for the future of primary care, the standard at Naval Hospital Rota, Spain, since 1989. With a new facility and a new vision as the Navy's Overseas Family Practice Demonstration Project, the staff has successfully and continually demonstrated that optimal use of primary care providers, organized in teams, has given maximum patient, provider, and responsible line commander satisfaction for the past 6 years.

Managed Care

Patients are empaneled as soon as they arrive in Rota. A hospital representative meets the "Cat B" flight, collecting medical records and providing a hand-out and points of contact. During the first full week in Rota, active duty and family members all attend Inter-Cultural Relations (ICR) class. One of the Family Practice Team nurses attends the class and sets up appointments with each family for the following week in the Family Practice Clinic. At that visit, a health maintenance assessment is performed by the Family Practice Team nurse and patients are scheduled for whatever they may need (periodic exams, Pap smears, cholesterol class, smoking cessation class,

etc.). Additionally, they are introduced to the team responsible for their care.

Access to care is through the Family Practice Clinic. Military sick call, acute and routine appointments, as well as "walk-ins" are performed by the Family Practice Team. Patients needing specialty care are referred to the appropriate specialist, but return to their team when finished with their consultation. Access to care through the emergency room is also handled by the Family Practice Team during the day, and patients seen at night (often by family physicians on duty) are followed up by their team in the clinic.

Primary Care Health Teams

Rota's Family Practice Teams consist of two board-certified family physicians, a nurse practitioner, a physician's assistant, a team nurse (RN), and two general duty corpsmen. Although the teams are not exactly uniform (one team has a pediatric physician's assistant, one an OB nurse practitioner, one a GMO and independent duty corpsmen) they all function similarly. All providers see military sick call twice a day. The nurse practitioner, physician's assistants, and team nurse are heavily involved in patient education and patient care with physicians

acting as their consultants and colleagues. Team nurses do telephone triage, patient education, injections, blood drawing, IVs, fit walk-in patients into clinician schedules, and perform the initial health maintenance assessment interviews. Assignment of patients to small (four to five clinicians) teams facilitates access and availability, provides clinician coverage, and a degree of patient choice of primary clinician. Because of time spent performing other duties (operational, emergency room, labor deck, teaching classes), each team usually functions with approximately 2.0-2.5 Physician Full-Time Equivalents (FTEs), (utilizing the generally accepted convention of advanced practice nurse and physician's assistants equivalent to 0.5 FTE physician).

Each team is assigned to care for certain commands. Those patients not attached to a command (transient, fleet patients, retirees) are assigned to a team based on the last two digits of their social security number. Each team cares for approximately 2,500-3,000 patients. This number can increase significantly with high "fleet" activity, and includes active duty, retirees, and their family members as well as Department of Defense (DOD) civilians eligible for care.

Assigning commands to teams has been extremely beneficial and mutually rewarding. All members of a command go to the same team for all primary care concerns and are able to see the same provider that cares for their family; the team becoming, in effect, part of that command and can be utilized by the command for medical training, safety stand downs, and any other special needs.

Proactive Health Maintenance

As mentioned above, patients are introduced to the clinic's proactive approach to health maintenance when they step off the plane. Physicians, team nurses, nurse practitioners, physician's assistants, and Hospital Corps staff are actively involved in women's health issues, childbirth preparation classes, smoking cessation classes, cholesterol classes, HIV awareness, PRT coordinator training, and several other classes. Additionally, hospital health care providers have been given 2 days a week to speak with all classes of 7th-12th grades at the DOD School addressing issues of STDs, HIV, smoking cessation, drug awareness, exercise, nutrition, and skin care. For several years hospital staff trained all high school students in Basic Life Support (BLS).

Naval Hospital Rota hosts an annual health fair, coordinated by one of the family practice providers. More than 400 people attended over 40 booths at the fair, which is usually held on a Saturday in front of the Navy Exchange.

Scope of Care

All clinicians are encouraged and expected to provide the maximum scope of services for which they are trained. Physicians provide full spectrum longitudinal outpatient and inpatient care, including deliveries and newborn care. Physician's assistants and nurse practitioners provide outpatient longitudinal and acute care. Independent duty corpsmen provide acute care at sick call and help monitor the performance of hospital corpsmen. Other hospital corpsmen are instructed and mentored in a clinical assistant program leading to the acquisition of assessment and treatment skills; this program is conducted jointly by physi-

cians, physician's assistants, nurses, and independent duty corpsmen.

Interdepartmental Functions

Since the inception of the demonstration project, the family practice head has also been the Chief of Medical Services. Under his Quality Improvement Plan, all primary care departments (family practice, pediatrics, and internal medicine) and other members of the Medical Directorate (emergency room, optometry, dermatology, and mental health services) had common quality indicators and proactive standards. With the evolution from quality improvement to performance improvement, the performance improvement processes cross all departmental lines and all corps (MC, NC, MSC, HM).

Pediatric and internal medicine clinicians are fully integrated both as primary care clinicians for patients with a preference or an established relationship with these clinicians and providing consultative services as required.

All medical services clinicians attend daily morning report and discuss the previous night's admissions, interesting cases, and administrative items. The daily morning meeting ensures continuity of care, provides for educational opportunities, and is an important collegial time.

"Deckplate" Medicine

Naval Hospital Rota brings care to beneficiaries. With the closure of Torrejon AFB, Rota assumed care for the U.S. Coast Guard LORAN station in Estarrit, north of Barcelona, and a small Air Force geological contingent near Toledo. Rota family practice providers make quarterly visits to these sites for routine immunizations, Pap smears, health maintenance training, and care of routine medical problems. Additionally, flu shots are given on site base tenant commands with ACLS providers from family practice in attendance.

Operational Medicine

Although already "forward deployed," Naval Hospital Rota is actively involved in monitoring the operational readiness of the Sixth Fleet. The fleet liaison officer, one of the family practice providers

with fleet experience, ensures all fleet needs are met. All "in chopping" groups are given all available assistance in consultations, appointments, and supplies routinely receiving accolades for the quality and timeliness of service provided.

The Rota NASA Space Shuttle Support Team, headed by a family physician, provides contingency medical support for each shuttle landing at the Transoceanic Abort Landing Site (TALS) in Moron, Spain. Described in an article in the 17 Aug 1994 issue of *JAMA*, the team constantly prepares and trains for a disaster they hope will never happen.

Additionally, as members of the Medical Response Team (MRT) and Special Intervention Response Team (SIRT), NAVEUR stands prepared to respond to medical and psychological catastrophes anywhere in Europe, with family physicians responsible for maintaining training and equipment and preparing the teams for potential emergencies.

Conclusion

The "demonstration project" at Naval Hospital Rota has been a huge success in terms of patient satisfaction, clinician satisfaction and retention, and line appreciation. It is based on a full scope of integrated practice by primary care clinicians from many specialties and corps. The Rota model has been described by the Navy Inspector General (October 1993) as "the best we have seen" . . . "provides timely care for all eligible personnel at Rota and promotes maximum availability of health care resources." It is time to import this model of success from España. □

Dr. Mason is a family physician and was Head, Family Practice Service and Director, Medical Services at Naval Hospital Rota, Spain, from 1993 to 1995. He presently serves as Associate Director of the Family Practice Residency at Naval Hospital Pensacola, FL. Dr. Racicot is a family physician and served in the same positions at Rota from 1989 to 1992. He is presently stationed at Naval Medical Center Portsmouth, VA, and is the Specialty Advisor for Family Medicine to the Surgeon General of the Navy.



Navy Medical Department's Strategic Planning Process

Sandra B. Mayo, RRA, CPHQ, Ed.D.
Gregory Atkinson
John R. Durham, Jr., MBA

The Navy Medical Department's second strategic plan, *Journey to Excellence: Meeting the Challenges of the Future* was signed by the Surgeon General in August 1995. The plan is the cornerstone for a process developed by the Office of the Assistant Chief for Plans, Analysis and Evaluation Directorate (MED-08), and approved by the senior leadership of Navy medicine. The process, known as the *Navy Medical Department's Strategic Planning Process*, facilitates implementation of the strategic plan, and stimulates continuing

cycles of planning and evaluation at all levels of the Navy Medical Department. The process is designed to be used not only at headquarters, but by all the Department's commands and corps. At each level of Navy medicine, the leadership will develop plans based upon the Navy Medical Department's strategic plan and utilize the Strategic Planning Process.

The Strategic Planning Process demonstrates Navy medicine's progression from the strategic planning document to data-driven decision making, implementation of the stra-

tegic plan in increments using an *Annual Planning Process*, and evaluation of change or progress using metrics and customer input. Like the strategic plan, the Strategic Planning Process is intended to strengthen Navy medicine's culture of quality and guide Navy medicine toward reaching its present "True North," (1) which is readiness, and its future goals.

Strategic Planning Process

The Strategic Planning Process has 10 components that are divided into three phases as illustrated in Figure

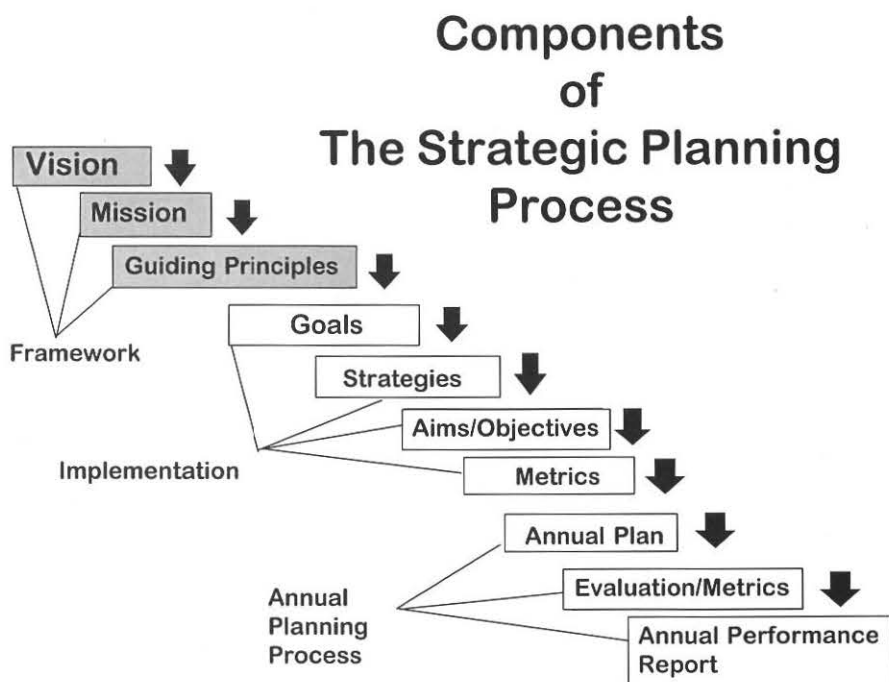
1.(2) Although the process always includes these components, some of the components may have a multiyear life span, while others may be revised annually.

Initially, during the Framework Phase, the flag-level leaders establish the fundamental concepts upon which the organization is based. These are long-term concepts, in that they should be viable for at least 6 years, barring major unexpected changes in the environment. They are recorded in the strategic plan as the mission, vision, and guiding principles.

During the second, or Implementation Phase, the leadership is responsible for documenting in the strategic plan, in increasingly detailed, measurable terms, how the plan will be implemented—that is, the manner in which they intend for Navy medicine to reach designated performance targets within the 6-year period covered by the plan. The following are formulated: general goals, strategies, aims (multiyear objectives), and the methods to be used to evaluate progress and to revise the general goals, strategies, and aims.

In the Strategic Planning Process, the emphasis is upon metrics as an evaluation tool. Metrics should be used to establish baselines and to measure and document our progress toward reaching our aims. It is important to write the multiyear aims in measurable terms so that metrics can be developed from the aims. It is also important to break the multiyear aims down into 1-year increments during this second phase, in preparation for the Annual Planning Process.

Prior to annual planning a projection should also be made, with input from appropriate experts, of the financial, personnel, facilities, and equipment resources needed to accomplish the strategic plan. These projections should then be broken



Adapted from the Performance Management Group

Figure 1

down into 1-year increments for the 6-year period.

The Annual Planning Process is the third and final phase of the Strategic Planning Process. It has three major components: annual plan, evaluation/metrics, and annual performance report.

Planning Activities

Figure 2 illustrates the usual schedule of planning activities. The mission, vision, and guiding principles (Framework Phase) have an average life span of 6 years and are reviewed accordingly. The goals, strategies, and aims (with metrics) have an

Schedule of Planning Activities

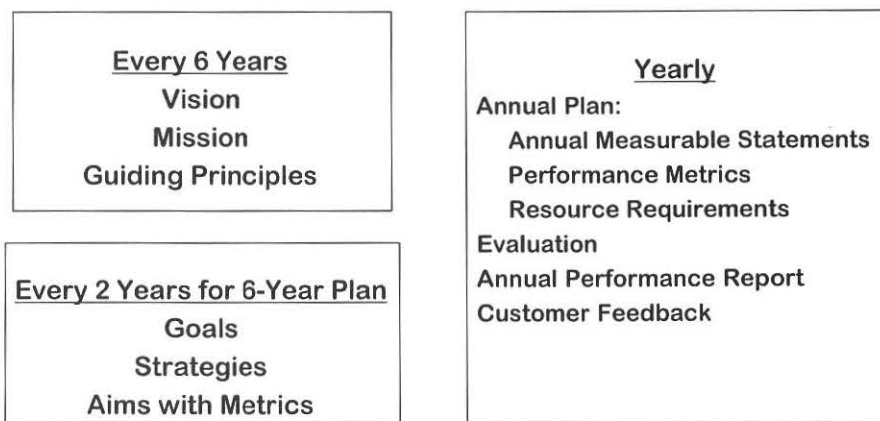


Figure 2

Annual Planning Process

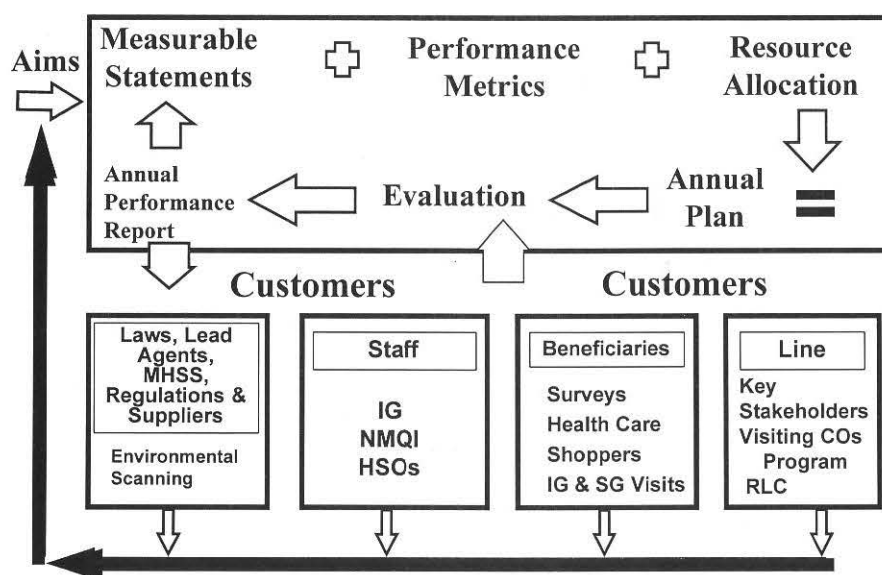


Figure 3

average life span of 2 years. Every 2 years the Department's 6-year strategic plan is reviewed and the goals, strategies, aims, and the metrics derived from the aims (Implementation Phase) are updated and/or revised. Yearly, the Annual Planning Process, consisting of a cycle of activities, is repeated. Its purpose is to assure incremental progress toward achievement of the multiyear aims. This schedule of planning activities is flexible, and updates and additions can be made when needed to adjust to changes in the environment.

Alignment with the POM

The biannual review of the strategic plan is conducted in order to synchronize planning activities with the Program Objective Memorandum (POM) process. This review allows multiyear aims and initiatives, that may require significant multiyear funding, to feed into the POM process. The aligning of the strategic planning and POM processes repre-

sents a significant step toward aligning our resources with the activities planned to meet our strategic goals.

Annual Planning Process

The Annual Planning Process is depicted in Figure 3. It is a process that will be adapted by each of the commands and corps of the Navy Medical Department to facilitate implementation of their strategic plan. The Annual Planning Process begins with the multiyear strategic aims that have been broken down into 1-year increments. Each fiscal year the leadership develops measurable statements (annual objectives) of the progress Navy medicine intends to make during the coming fiscal year toward achieving the multiyear aims for each goal. From these measurable statements, the leaders develop performance metrics by which to measure the year's accomplishments. Next, based upon projections made during the Implementation Phase and the established budget for the next

fiscal year, the leaders determine in more specific terms what resources will be allocated to achieve the requirements of the measurable statements for the coming fiscal year. Activities noted in the annual plan will require funding and prioritization within existing budget targets, and all categories of resources are included: financial, personnel, facilities, and equipment. The measurable statements, plus the performance metrics, added to the resource allocation form the annual plan.

Throughout the year progress toward meeting the requirements of the measurable statements is monitored by applying the performance metrics to performance data, environmental scanning, and collecting and interpreting input from our customers. These evaluation efforts culminate at the end of the year with the development and publication of an annual performance report. The annual performance report compares performance during the fiscal year with the

PERFORMANCE INDICATORS	STRATEGIC PLAN GOALS					MONITOR & TRACK
	Readiness	People	Technology	Stewardship	Health Benefit	
1 Augmentation billets for platforms have matching personnel.	X					MED-02/MED-07
2 Administrative requirements fulfilled for platforms completed.	X					MED-02
3 Deployable medical platforms at designated phased readiness.	X					MED-02/MED-04
4 Dental readiness	X					MED-06
5 Active and reserve inventory 95% of BA		X				MED-05/MED-07/ MED-00HC
6 Deployment of Ambulatory Data System by end FY 96			X			MED-09D
7 E-mail connectivity			X			MED-09D
8 Deployment of CHCS version 4.4 by end FY 96			X			MED-09D
9 Financial management training completion				X		MED-05
10 Overall system performance				X		MED-01/MED-06
11 Hepatitis B rates per 1000 Active Duty					X	MED-02
12 Syphilis rates per 1000 Active Duty					X	MED-02
13 New HIV cases					X	MED-02
14 Remedial weight loss program					X	MED-02
15 PRT failures and waivers					X	MED-02
16 TRICARE enrollment					X	MED-03
17 TRICARE disenrollment					X	MED-03
18 TRICARE Presentation Major Commands and RLC					X	MED-03
19 TRICARE Presentation to Active Duty					X	MED-03

Figure 4

requirements of the strategic aims and with the annual measurable statements for the year.

An important part of the Annual Planning Process is feedback from Navy medicine's internal and external customers who have been divided into these four groups: line, beneficiaries, staff, and those customers monitored via environmental scanning, such as Congress and the Department of Defense. Customer input influences the leadership's conclusions about our successes and the improvements we in the Navy Medical Department will strive to make during the coming fiscal year, as documented in the measurable statements for the year. The leadership, in turn, provides status reports on the Department's progress by circulating the annual performance report to our customers. A number of programs have been developed to facilitate the information exchange between Navy medicine and our customers. Examples are the Visiting Commanding

Officers, Prospective Commanding Officers, and Responsible Line Commanders Programs, through which these officers make individual visits to the Bureau of Medicine and Surgery and exchange strategic and other information.

Performance Indicators

As noted earlier in this article, an emphasis upon metrics is a significant characteristic of the Strategic Planning Process. Metrics, in the context of the Strategic Planning Process, is a general term referring to

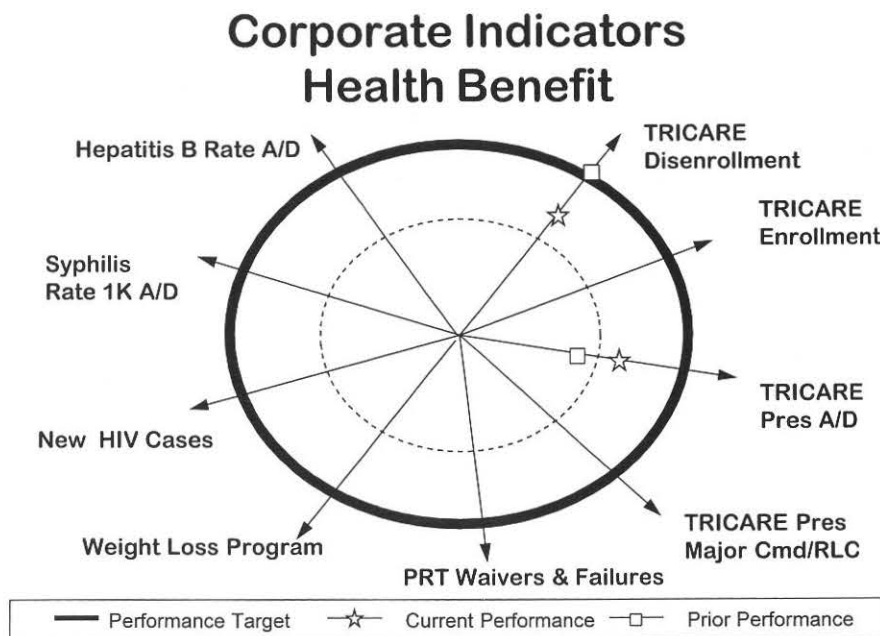


Figure 5

“measures of how we (or a process) are doing.”(3) We refer to an individual gauge or measure of accomplishment as a performance indicator. The Navy Medical Department flag-level leaders have developed performance indicators for each of the five strategic goals included in the current strategic plan. These initial 19 indicators, which will be improved and expanded upon, the goals to which they apply, and the Bureau of Medicine and Surgery codes responsible for monitoring and tracking them, are listed in Figure 4.

The MED-08 staff has also developed two methods that can be used to present graphically the status of the Navy Medical Department’s success in meeting the requirements of our strategic aims and annual measurable statements. The first method, illustrated in Figure 5, presents hypothetical results related to the Health Benefit goal and can be used to display results related to the majority of the performance indicators. In this diagram: the area inside the innermost

circle, bordered by the dotted line, is generally colored red for danger and represents unacceptable performance; the dotted line represents minimal acceptable performance; the area between the dotted line and the outer ring, generally colored yellow for caution, represents progress toward the goal; and the outer ring, generally colored green, represents achievement of the aim or the requirements of the measurable statement. The square indicates the status of performance when it was previously measured, and the star represents the current status.

The chart in Figure 6 presents hypothetical results related to the technology goal. This type of chart is used to report the percentage of accomplishment of aims or requirements of measurable statements. As in the other chart, the square represents the previous results and the star represents the current status. Colors may be used, as with Figure 5, to show whether performance is acceptable.

Strategic Performance Champion Approach

Five strategic performance champions, one for each of the five strategic goals, have been appointed by the Surgeon General to monitor performance to meet the strategic plan and the annual plan and to report the status of performance metrics to the Surgeon General. The champions, coordinated by the Deputy Surgeon General, are flag officers or members of the Senior Executive Service. Each leads a group of senior Navy Medical Department personnel who develop the multiyear strategic aims, monitor progress, and are responsible for the Annual Planning Process for their assigned goals.

The Deputy Surgeon General will conduct an annual planning conference each fiscal year to develop the annual performance report for the current fiscal year and the annual plan for the coming year as previously described. The strategic performance champions and the strategic performance committee members, the officers in charge of the Naval Healthcare Support Offices, the commanders of other key commands, and the Director of Naval Medical Quality Institute may participate.

Advantages of the Strategic Planning Process

The Strategic Planning Process offers these advantages to Navy medicine:

- provides the basis for a defined business plan,
- is easily adaptable for use at all levels of the Navy Medical Department,
- reinforces Navy medicine’s culture of quality,
- encourages strategic thinking and empowers our people to use innova-

Corporate Status Tracking Technology

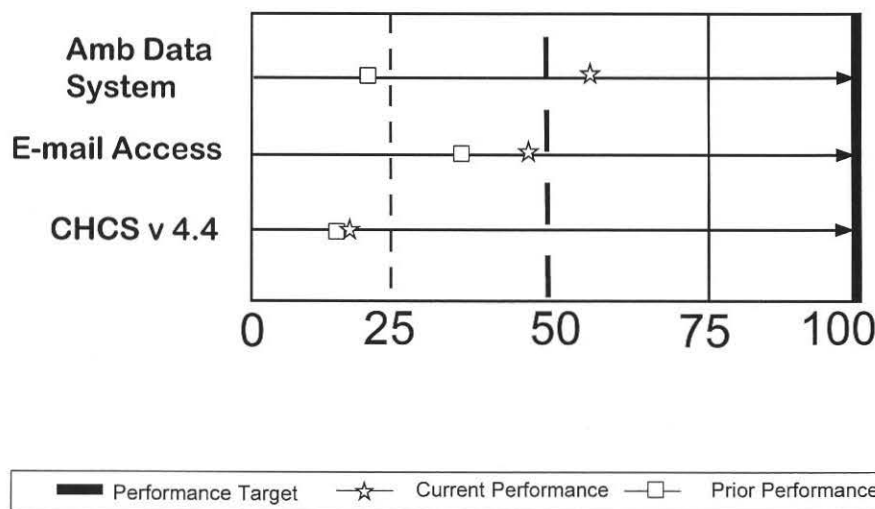


Figure 6

Navy Medical Department's Strategic Planning Process

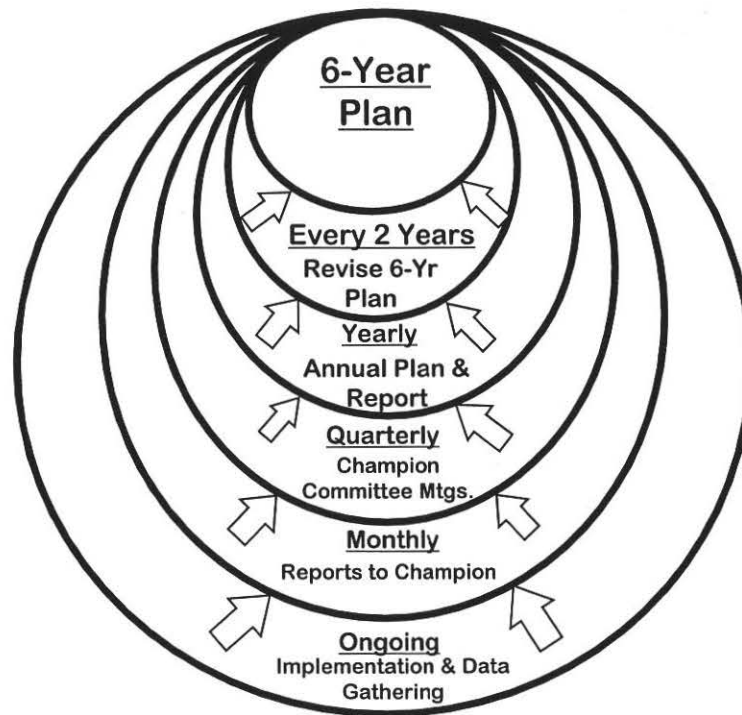


Figure 7

tive strategies to meet our strategic goals,

- provides a methodology for measuring progress through the use of metrics,
- provides the input for knowledge-based decisions,
- incorporates accountability through the strategic champion approach,
- is customer oriented,
- aligns with the Government Performance and Results Act of 1993, and
- aligns with the MHSS implementation of metrics.

Conclusion

The diagram in Figure 7 summarizes the cyclic attributes of the Stra-

tegic Planning Process with the 6-year plan at its core. It shows how the Navy Medical Department's ongoing and scheduled activities, properly managed and executed, are all a part of strategic plan implementation.

The strategic plan and the Strategic Planning Process are the bridge that will facilitate successful mission accomplishment to meet Navy medicine's vision. The strategic plan is supported by metrics—more specifically, by Navy medicine's 19 current performance indicators. The Strategic Planning Process and its component Annual Planning Process are an avenue to successful strategic plan development, implementation, and evaluation at all levels of the Navy Medical Department.

References

1. Covey SR. *Principle-Centered Leadership*. Simon and Schuster; 1990.
2. Adapted from the Performance Management Group, The Third National Conference on Strategic Planning for Government; 1995.
3. Assistant Secretary of Defense/Health Affairs. *Metrics Development*. (Copied from an Air Force pamphlet); 1995.

Note: RADM Jerry K. Johnson, DC, presented the Strategic Planning Process at the Rear Admiral Lewis E. Angelo Professional Symposium, Foundation of the American College of Healthcare Executives 1996 Congress on Healthcare Management. The full text and slides from this presentation are available via the MED-81 home page. □

Dr. Mayo, Mr. Atkinson, and Mr. Durham are on the staff of the Bureau of Medicine and Surgery (MED-08), Washington, DC.

**U.S. Naval Medical Research
Institute Detachment (NAMRID)
Lima/Iquitos, Peru**

A Decade of Infectious Disease Research

Douglas M. Watts, Ph.D.

In the early 1980's, the Surgeons General of the Peruvian and U.S. Navies, with concurrence from the U.S. Department of State and the Peruvian Minister of Foreign Affairs, agreed to a cooperative medical research program on infectious diseases of mutual interest. This agreement led to the establishment of the Naval Medical Research Institute Detachment (NAMRID) in 1983 under the sponsorship of the Peruvian Navy.^(1,2)

The main building of this most recent addition to DOD OCONUS medical research facilities was dedicated in 1985, in Callao, Lima, Peru. The detachment serves as a satellite laboratory for its parent command, the Naval Medical Research Institute (NMRI), Bethesda, MD. The 33,000 square feet, state-of-the-art main laboratory and animal facilities, as they exist today, were completed in 1987. The main laboratory facility is augmented by 2,000 square feet of laboratory space located in the Peruvian Naval Hospital in Iquitos, Peru, on the Amazon River.

On the basis of the number of staff, NAMRID is among the smallest OCONUS laboratories. The number of Ameri-

cans has varied from 3 to 11. Currently, four American staff, the officer-in-charge, senior scientist, epidemiologist, and bacteriologist are authorized in accordance with the Department of State's temporary security procedure. The foreign service national employees include 19 administrative support staff and 19 research technicians. Two of the technicians are assigned to the NAMRID Iquitos facility. NAMRID staff is supplemented by a Peruvian Navy physician and three enlisted technicians. In addition, U.S. Navy and Army research TAD staff, both long and short term, have played a key role in sustaining NAMRID's research mission.

NAMRID's overall mission is to conduct medical research aimed at minimizing the impact of infectious diseases on military operations in the Central and South American region, as well as on the health of the Peruvian population at-large. Currently, the specific goals of ongoing research are: (1) to determine and prioritize the threat of infectious diseases to deployed military troops and to the local military and civilian populations, (2) to target

basic and operational research on the priority diseases to produce biomedical knowledge for the development of disease prevention and treatment strategies, (3) to evaluate diagnostic tests and candidate drugs and vaccines, and (4) to transfer diagnostic and medical research technology to national health authorities for the overall improvement of the health in the region.

The ultimate goals of NAMRID's mission are similar to that of other OCONUS facilities, but the research requirements differ because of the unique and diverse physical and biological features of the region. The terrain in Peru is representative of the entire South American region, which includes the coastal desert plain, Andean mountains and foothills, and the vast tropical Amazonian rainforest. The types and prevalence of disease pathogens vary considerably in each of these regions. This diversity of pathogens, including representatives from every known complex of disease agents, presents unique opportunities for challenging and original research relevant to the entire region.

This challenge is increased by the opportunity to study newly emergent disease pathogens. For example, dengue and Oropouche fever viruses recently emerged as a significant cause of human disease.(3,4) Perhaps of greater significance, the NAMRID on-site research team can follow changing patterns in the ecology and epidemiology of new and old infectious pathogens. The prevalence of human T cell leukemia virus and associated diseases are among the highest in the world.(5-8) The epidemiology of human immunodeficiency virus (HIV) differs from other countries in that the prevalence of infection has remained less than 1 percent among prostitutes for more than 6 years. (Alarcon, NAMRID, and San Marcos University, unpublished data) Acute hepatitis associated with hepatitis B and a new genotype of hepatitis D virus are major causes of morbidity among both children and adults.(9,10) *Aedes aegypti*, the vector of dengue viruses has reinfected Iquitos, the major urban area of the Amazon Basin region following the eradication of this species.(11) Several new species of phlebotomine sandflies were recently recognized as potential vectors of *Leishma-*

nia parasites.(12,13) The cause of malaria has begun to shift from predominately *Plasmodium vivax* to *Plasmodium falciparum*. (Hayashi, NAMRID, unpublished data) A new species of *Leishmania* was recently recognized as the cause of human disease.(14) Finally, the reemergence of cholera in Peru during 1991 as the cause of a devastating epidemic has provided a unique opportunity to implement cholera vaccine efficacy trials among both military and civilian volunteers.(15)

The ability to study diverse pathogens, to detect new pathogens, and to follow changing disease patterns can be attributed to NAMRID's on-site location. Similarly, longitudinal prospective studies, such as those being conducted on dengue and viral hepatitis diseases, as well as long-term studies, such as the cholera vaccine project requires an on-site institution with appropriate resources and an extensive infrastructure. Thus, NAMRID's presence is essential to ensure that the research mission generates military relevant and applicable knowledge and tools required to sustain effective military operations, and to contribute to the improvement of health in the region.

NAMRID's research program is closely integrated with that of the Department of Infectious Diseases, NMRI. In addition, research projects are being conducted in collaboration with the University of Washington, Georgetown University, Walter Reed Army Institute of Research, Armed Forces Research Institute of Medical Sciences, and the University of Goteberg, Goteberg, Sweden. These collaborative efforts have led to numerous research projects investigating bacterial, parasitic, and viral diseases.

Among the more recent achievements, research on cholera revealed that *V. cholerae* -01 and enterotoxigenic *E. coli* were the predominant cause of diarrhea among a lower socioeconomic community during the summer season in Lima, Peru.(16) A novel cholera vaccine was shown to be safe and immunogenic in a group of native Peruvians,(17) and the vaccine provided rapid short-term protection against cholera in adult Latin Americans. (15)

Studies on the immune response to *Plasmodium vivax* suggested that the nonrepeat and variant repeat sequences of this parasite's CS protein may induce protective antibody, and therefore may be useful for preparing candidate vivax sporozoite malaria vaccines.(18-20) A fifth species of *Leishmania* was recognized in Peru as the cause of human disease.(14) The therapeutic efficacy of Pentostam, regardless of the treatment regime, failed to provide any substantial benefits for severe cases of mucocutaneous leishmaniasis.(21,22) The poor therapeutic efficacy of Pentostam was attributed to resistance to this drug among a high percentage of the *Leishmania* isolates obtained from the patients.(23)

Gene sequence data for hepatitis D virus isolates obtained from Peruvian military patients differed significantly from other recognized strains in Asia, Europe, and the United States.(10) Ongoing research on retroviruses demonstrated that HIV infection is common among homo/bisexuals, but has remained exceptionally low among prostitutes and the general population. (Phillips, NAMRID, unpublished data) In contrast, HTLV infection rates among prostitutes are as high as anywhere in the world. Dengue and Oropouche viruses have recently emerged as the cause of significant morbidity in Peru.(3,4)

Entomological studies described the first evidence of Lyme disease in Peru,(24) and prepared comprehensive descriptions of the taxonomy of mosquitoes,(11) ticks,(25) and sandflies in Peru (Fernandez, NAMRID, unpublished data), including several new species of sandflies.(12,13)

While the number of staff was significantly reduced in 1993, NAMRID continues vital research projects, although the focus has been restricted to viral and bacterial diseases. Current projects include field and laboratory studies on the ecology and epidemiology of dengue and Oropouche fever. The epidemiology and molecular virology of a new genotype hepatitis D virus and other viral hepatitis-related health problems are under investigation in the Amazon Basin of Peru. In Lima, NAMRID is studying the epidemiology and molecular virology of retroviruses. In collaboration with NAMRID staff, a temporarily assigned Army scientist is evaluating the efficacy of a novel cholera vaccine. The opportunity to execute this

cholera vaccine trial as a joint R&D program represents an important milestone toward coordinating the Army and Navy resources for sustaining a critical mass of scientific expertise in the OCONUS research facilities.

In addition to its research capabilities, NAMRID provides extensive collaboration and training in the Peruvian medical community. All ongoing research projects are being conducted in collaboration with several Peruvian military branches, the Ministry of Health, universities, and private medical institutions. Continuous medical research and disease diagnostic training is provided to all branches of the Peruvian military, Ministry of Health, and other local medical institutions. NAMRID has supported "fleet" activities, such as the annual exercise between U.S. and Latin American naval forces. Also, diagnostic support was provided to the Navy forward diagnostic laboratory during the Gulf War. Support is provided to the local health authorities on the investigation and control of disease outbreaks. NAMRID's library contains the most current and extensive sources of scientific information, which are shared with local scientist and health authorities. Electronic data processing and analysis is shared with the local medical community. Diagnostic support is provided to the U.S. Embassy's health unit, the Ministry of Health, as well as for selected clinical biochemical tests.

NAMRID also serves as a national reference and confirmatory testing center for retroviruses in Peru. The capability to diagnose infectious diseases is among the most reliable and extensive in the region. Clearly, these and many more achievements can be attributed to NAMRID's unique on-site location within the region, with the technological resources and capability to identify disease threats, transfer medical technology, generate original medical knowledge, and evaluate candidate vaccines and therapeutic drugs for disease prevention and treatment strategies.

NAMRID as a research facility has remained in Peru despite numerous obstacles that have, at times, led to closure considerations. Staffing reductions due to unfavorable security conditions in Peru has and continues to be the primary concern regarding NAMRID's mission capability. However, this constraint has been partially re-

solved by a recent decision that authorizes NAMRID additional American staff. Increased staff will lead to an overall enhancement of NAMRID capability to perform its military mission as well as contribute to stabilization through the improvement of health in the region. While the mission of several national and international agencies in Peru is to provide support toward the improvement of health, NAMRID's capability is unique in that it has the on-site demonstrated capability to transfer advanced technology and generate knowledge required to improve and sustain a lasting health care infrastructure. This will lead to improvements in the quality of health, and therefore assist in achieving political, economic, and security stability in the region.

Over its 11 years of existence, NAMRID has matured into a leading Latin American center for medical research. NAMRID's on-site location offers an excellent opportunity to study diverse pathogens, detect emergent pathogens, and analyze changing disease patterns. NAMRID provides an extensive collaborative and training role in the Peruvian medical community. Medical support is provided for joint U.S. and Latin American naval forces; diagnostic support is available to the U.S. Embassy's health unit and the Peruvian Ministry of Health. NAMRID has the advanced resources to identify disease threats, transfer technology, generate military and public health knowledge, evaluate candidate vaccines and therapeutic drugs for disease prevention and treatment strategies. These achievements can be attributed to NAMRID's leadership role and to the outstanding cooperation and support of the NMRI, NMRDC, the Peruvian Navy and Army, the Peruvian Ministry of Health, and other Peruvian and international medical institutions. The unyielding determination and dedication on behalf of NAMRID and collaborating institutions to sustain a productive research program under less than favorable conditions in Peru clearly indicates continued success in the future.

For additional information about the Navy's OCONUS labs, contact the lab directly or CDR Schlagel, Naval Medical Research and Development Command, at DSN 295-0881 or Commercial 301-295-0881.

References

1. Kilpatrick ME, Barzotti-Townsend A. What's a NAMRID? *US Nav Med.* July-August 1984;75:6-8.
2. Buck RL, Need JT. What's a NAMRID? *Nav Med.* January-February 1992;83:6-9.
3. Phillips I, Need JT, Escamilla J, et al. First documented outbreak of dengue in the Peruvian Amazon region. *Bull PAHO.* 1992;26:201-207.
4. Chavez R, Colan E, Phillips I. Fiebre de Oropuche en Iquitos: reporte preliminar de 5 casos. *Rev Farmacol Terap.* 1992;2:12-14.
5. Phillips IA, Hyams KC, Yuen A, Gotuzzo E, et al. HTLV-1 co-infection in a HIV-1 infected Peruvian population. *J AIDS.* 1991;4:301-302.
6. Wignall FS, Hyams KC, Phillips IA, et al. Sexual transmission of human T-lymphotropic virus type I in Peruvian prostitutes. *J Med Virol.* 1992;38:44-48.
7. Hyams KC, Phillips IA, Tejada A, et al. A three year incidence study of retroviral and viral hepatitis transmission in a Peruvian prostitute population. *J AIDS.* 1993;6:1353-1357.
8. Gotuzzo E, Sanchez J, Escamilla J, et al. HTLV-1 infection among female sex workers. *J Infect Dis.* 1994;169:754-759.
9. Indacochea S, Gotuzzo E, De la Fuente J, et al. Elevada prevalencia de marcadores de hepatitis B y Delta en el Valle Interandino de Abancay. *Rev Med Herediana.* 1991;2:4.
10. Casey JL, Brown TL, Colan EJ, et al. A genotype of hepatitis D virus that occurs in Northern South America. *Proc Natl Acad Sci USA.* 1993;90:9016-9020.
11. Need JT, Rogers EJ, Phillips IA, et al. Mosquitoes (Diptera: Culicidae) captured in the Iquitos area of Peru. *J Med Entomol.* 1993;30:634-638.
12. Fernandez R, Carbajal F, Alexander B, et al. *Lutzomyia* (Trichophormyia) *pastazaensis*, a new species of phlebotomine sandfly (Diptera: Psychodidae) from the Peruvian Amazon. *Mem Inst Oswaldo Cruz.* 1993;88:505-508.
13. Fernandez R, Carbajal F, Alexander B, et al. Description of *Lutzomyia* (Evandromyia) *sipani*, a new species of sandfly (Diptera: Psychodidae) from Loreto Department, Peru. *Mem Inst Oswaldo Cruz.* 1994;89:167-169.
14. Lucas CM, Franke ED, Cachay MI, et al. *Leishmania* (Viannia) *lainsoni*: first isolation in Peru. *Am J Trop Med Hyg.* 1994;51:533-537.
15. Sanchez J, Hayashi KE, Kruger HF, et al. Safety and immunogenicity of the oral, whole cell/recombinant B subunit cholera vaccine in Peruvian military recruits (unpublished data).
16. Begue RE, Castellares G, Hayashi KE, et al. Diarrheal disease in Peru after the introduction of cholera. *Am J Trop Med Hyg.* 1994;51:585-589.
17. Begue R, Castellares G, Ruiz R, et al. Community based assessment of the safety and immunogenicity of the whole cell plus recombinant B subunit (WC/rBS) oral cholera vaccine in Peru. *Vaccine.* 1995. In press.
18. Franke ED, Lucas CM, San Roman E. Antibody response of humans to the circumsporozoite protein of *Plasmodium vivax*. *Infect Immun.* 1991;9:2836-2838.
19. Franke ED, Lucas CM, Chauca G, et al. Antibody response to the circumsporozoite protein of *Plasmodium vivax* in naturally infected humans. *Am J Trop Med Hyg.* 1990;46:320-326.
20. Franke ED, Lucas CM, San Roman E, et al. Prevalence of antibody to the variant repeat of the circumsporozoite protein of *Plasmodium vivax* in Peru. *Am J Trop Med Hyg.* 1992;46:708-710.
21. Franke ED, Lucas CM, Tovar AA, et al. Diffuse cutaneous leishmaniasis acquired in Peru. *Am J Trop Med Hyg.* 1990;43:260-264.
22. Franke ED, Llanos-Cuentas A, Echevarria J, et al. Efficacy of 28-day and 40-day regimens of sodium stibogluconate (Pentostam) in the treatment of mucosal leishmaniasis. *Am J Trop Med Hyg.* 1994;51:77-82.
23. Grogil M, Thomason TN, Franke ED. Drug resistance in leishmaniasis: its implication in systemic chemotherapy of cutaneous and mucocutaneous disease. *Am J Trop Med Hyg.* 1992;47:117-126.
24. Need JT, Escamilla J. Lyme disease in South America? *J Infect Dis.* 1991;163:681-682.
25. Need JT, Dale WE, Keirans JE, et al. Annotated list of ticks (Ixodidae: Ixodidae Argasidae) reported in Peru: hosts, distribution and bibliography. *J Med Entomol.* 1991;28:590-597. □

Dr. Watts is scientific director of NAMRID.

Borrowed Combat Boots

CDR Tom Miller, Jr., MC, USNR (Ret.)

At least an hour and a half of predawn darkness remained as I stepped through the door of the Continental Air Lines DC-8. I was not a tourist arriving at some strange destination. The words of the stewardess were still ringing in my ears. She had tried to bring a little levity into the situation as she delivered the required prelanding instructions. "The temperature is 86 degrees. The skies are clear. There is some very light groundfire!" I was not a tourist, I was a military man entering a war zone.

I paused as I walked down the mobile stairs which had been shoved to the door of the charter that had brought me and 134 of my fellow Americans to join the war effort that morning in June 1967. The cool breeze blowing inland from the South China Sea belied the actual temperature. I tried to see beyond the lighted area around the passenger terminal of the Da Nang air base. I could not decide whether my inability to discern any lights in the surrounding area was a good sign or a bad one.

It was 4:30 in the morning—Tuesday morning. Not only were we now

11 time zones west of our point of origin, but sometime around midnight we had crossed the International Date Line. Monday became Tuesday when that invisible marker was crossed. This was, in more ways than one, the longest night of my life. Yet, it should have been one of the shortest ones of the year. It all began about 5:30 in the afternoon on the 18th, a Sunday, when our plane lifted from March Air Force Base near San Bernardino, CA. About 125 of the passengers were young marines. Most were headed for their first combat experience. The other 10 of us were Navy support personnel. I

was the ranking officer on the plane. That meant I got the choice seat, was the first to board, and the first to deplane.

Less than 1 year earlier, I had been a country doctor in a rural area of central Michigan. After being drafted I was sent to Naval Hospital Camp Lejeune, NC. Even there I had been caring for the medical needs of the dependents of the military personnel stationed on or associated with that Marine base. Now, with absolutely no combat readiness training—not even 1 minute's worth of indoctrination—I was about to become a mem-



Doctors and corpsmen fight to save a badly wounded marine.

Photos from BUMED Archives

ber of the medical staff of a frontline combat hospital. Because of a shortage of doctors and an increasing number of casualties, I received the emergency orders on Wednesday at 4:00 p.m. I was supposed to be sent back to Camp Lejeune as soon as a new group of doctors could be given their combat readiness training and fully outfitted for a combat zone assignment. At noon the next day one of the hospital personnel picked me up to take me to the airport.

I had not even been given instructions regarding the nature of uniform I was supposed to wear. But they did give me every immunization I needed for travel to Southeast Asia. Moreover, the only uniforms I owned required dry-cleaning.

Soon after we left the coastline behind and below us, I made a decision. Since I was the ranking officer on this flight, I could dictate the dress code. I decided to change from the Dress Blues, with those six gold buttons on its double-breasted front, to the washable khakis I bought in San Diego, CA, while waiting for the first available seat on an airplane headed for Da Nang.

During our long night, we had made two stops. The first was at Honolulu to refuel. The second was on Okinawa. The 125 marines who had made the first two legs of the flight with us deplaned and an equal number of young men in full battle dress boarded. Their weapons were stowed in the baggage compartment, but everything else they needed for survival was carried on their backs.

As I reached the foot of the steps, I became aware that every other person at that military base was not only wearing jungle fatigues, but they were also all carrying some form of personal weapon. Either handguns which were holstered but at the ready, or M-16 rifles.



A Navy doctor performs emergency surgery on a wounded ARVN soldier during rocket attack.

I was also aware that I must be standing out like a sore thumb. There I stood in wash khakis, carrying two steel-gray suitcases laden with standard Stateside uniforms, wearing my standard dress uniform hat with its khaki cover. I surely looked like a tourist, not like the combat-ready military man I was supposed to be.

Very soon after I got to my assigned duty station, several helpful souls pitched in to assemble some uniforms for me, uniforms which were more in keeping with the style of the day for that area. Four jungle fatigue tops were found at one supply depot. No jungle-style pants could be located, so they got me some regular fatigues which I wore in mismatched style. I have an extremely wide foot and a fairly large head. Boots and caps could not be found through any of the local supply sources.

During my first Sunday in Vietnam I was able to get a phone patch back to my wife at Camp Lejeune. These phone visits back home were arranged through a group of amateur radio operators who completed the contact with the Stateside party via a collect phone call. Among the other

things we talked about, I asked Jane if she would try to get me some caps to wear with the fatigues. By the next Sunday five caps arrived via the U.S. mail. How Jane was able to get them gives rise to a completely different story.

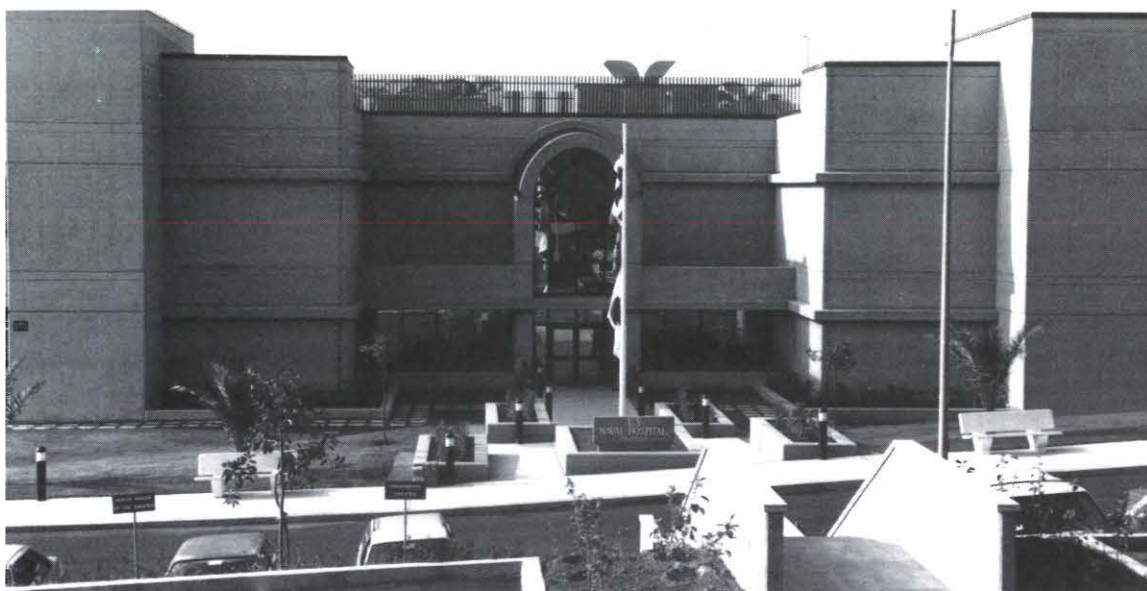
During the first or second week I was "in country," someone brought me a nearly-new, extra-wide, size 10, pair of jungle combat boots. When he handed them to me his only comment was simply, "He's not going to need them any longer!" I didn't need to ask for an explanation.

My sojourn as a physician in a war zone lasted only 42 days. My orders to the U.S. Naval Hospital Da Nang, Vietnam, called for a maximum of 60 days. To my surprise, I got orders to go back home nearly 3 weeks early. I brought my assemblage of field uniforms back to the States, including that pair of boots which were not even "broken-in" yet. I still have them all. For some reason they have all shrunk and I can no longer wear any of them, except for the boots. But I haven't worn those boots for at least 20 years.

One day soon, I plan to make my first visit to the Vietnam Veterans Memorial in Washington, DC. When I do, I will take those boots with me. I will find the panel which lists the names of those men who paid their all during the week of 19-26 June 1967. There I will leave those boots along with a copy of this essay. □

Dr. Miller is clinical assistant professor and GI coordinator at the Abdominal Division, Department of Radiology, University of Michigan School of Medicine, Ann Arbor, MI.

Reprinted with permission from *Personal, Please Forward*. Copyright © 1996, Tom Miller, Jr.



U.S. Naval
Hospital
Sigonella,
Italy

Strategies for Quality in Medical Logistics: Optimizing Customer Satisfaction

LT Michael A. Anaya, MSC, USN
LT Steven J. Wyrsh, NC, USN

This story relates the experience of U.S. Naval Hospital Sigonella, Italy. The hospital is a unique 12-bed community military hospital located on the eastern coast of Sicily. The local community of eligible beneficiaries number approximately 7,500. The ambulatory care volume totals approximately 100,000 visits per year.

Speculation would suggest that efforts to provide comprehensive medical logistic support would not be a challenging endeavor given the workload data above. But the daily issues that faced the Medical Logistics Department at the hospital presented an enlightening and motivational model. The integration of quality management, performance improvement, and

process refinement were key components that led to significantly greater customer satisfaction.

Prior to undertaking any major quality initiatives in the Medical Logistics Department, the classic maintenance of the "status quo" in daily operations was a shining example of a logistics system that was unresponsive to customer feedback, resistant

to change, and lacked the knowledge to adequately support an overseas health care facility.

Quality initiatives and assessing needs is by no means a new concept. But today, more than ever, the positive outcomes of implementing ongoing assessment and process management may be the crucial factors for preventing losses in today's highly competitive environment of downsizing, mergers, and takeovers. The bottom line: provide quality customer service and support.

The mission statement of an organization is the motivating catalyst and a compelling reason for conducting an external or internal needs assessment. Adhering to the spirit of the mission statement, and based on the information provided in the assessment, the organization can justify and validate their existence and support customers in their catchment area.

A simple question to first ask is, "What are we doing and how can we better meet your needs?" Although this may seem simplistic, the most dangerous path to follow is the belief that everyone in the organization is well versed in the departmental mission and operation. The critical point to emphasize here is listening; listening to the results of the question above. This simple assessment of the external systems must be accomplished by working with department heads to identify the current practices within the organization.

For example, the command's over-cautious staff would order months worth of supplies because of an unresponsive system. Meanwhile, the staff of the Medical Logistics Department had little confidence that they would be able to obtain needed supplies on a

timely basis. In essence, the hospital staff was accustomed to seeing months worth of supplies in limited supply areas with an increased percentage of short shelf-life material. Overly large inventories waste both space and money. Attitudes needed to be changed and trust needed to be developed. Planning, designing, and implementing major strategies for quality in medical logistics built a system of appropriate trade-offs and rational planning techniques that paid off with outstanding dividends. Moreover, this will boost the quality of service provided for years to come.

By summarizing the following initiatives, it is not our intention to develop a cookbook for success, but give the reader some "food for thought" to capture the processes inherent in providing quality and comprehensive medical logistic support that have proven to be successful.

President Harry S. Truman once stated "the best way to give advice to your children is to find out what they want and then advise them to do it." By identifying the medical logistic needs and wants of staff personnel, the department can devote sufficient logistical support and training to proactively achieve positive results.

Strategies for Quality

- Develop and foster a team management concept that ensures excellence and participation.
- Empower medical logistics personnel to take the lead and incorporate strategic planning purposes and processes.
- Move beyond simply reacting to changing internal/external customer requirements and begin to creatively anticipate needs to fulfill them. By

anticipation of needs, not only internal to medical logistics but to departmental customers as well, the occurrence of "crisis management" diminishes and the customers acquire a feeling of self-control for themselves, and develop trust confidence toward the Medical Logistics Department.

- Anticipate, identify, and correct problems by the team management philosophy, thereby reducing variability while sharing the process of decision making to all personnel internal to the department.

- Promote and guarantee an environment that is safe, healthy, and challenging. A work environment that is safe while enjoyable fosters teamwork and promotes a willingness and desire to participate.

- Emphasize and proactively pursue personnel's initiative and build self-esteem; the more competent the staff felt . . . the more they were able to contribute.

- Develop a more flexible work force through increased cross-training in all areas of the department, under the varying conditions within the department. If everyone in the department can answer a customer's question, or know where to find that answer, the result will be a more global view of customer needs and departmental operations.

- Reviewing the physical layout of the department: Does it promote easy workflow for processes inherent to the department? Is there unnecessary duplication of administrative work? Is there improper or incorrect data analysis and compilation? Are there ergonomic factors that impact the department's ability to function productively? By restructuring the ac-

tual physical layout of the department, personnel are able to quickly identify deficiencies in the workflow processes which can be easily corrected. This will result in an empowered and motivated staff, decrease redundancy in work, and thereby increase productivity.

- Establish a structured environment for continuous training and development of logistics personnel that results in high-quality, proactive, and challenged employees. This was accomplished at Sigonella by a method of phase training:

Phase One: Teaching the in-depth tenets and concepts of the process of medical logistics to the department itself. The people that interact with the customers that must be well versed in their work.

Phase Two: Teaching the customers the basic tenets and concepts of medical logistics. This proved to be the absolute vital phase of this training. Once the customers became aware of the processes of the system in which they were operating, the understanding of the intent, mission, and support available to them by way of the Medical Logistics Department actually resulted in decreasing the administrative work load required by the Medical Logistics Department.

Phase Three: Training of external suppliers. By using graphically analyzed and trended data relating to inventory control, stock turnover, shelf-life management, order and ship times, and other logistical support elements, it became evident to our suppliers that the needs of this hospital, an isolated overseas hospital with no commercial equivalent vendors, were unique and that they were, by in large, unresponsive to our needs.

Phase Four: Continuous and On-going Training. The Medical Logistics Department realized very early in this evolution that in order to main-

tain the level of understanding and keep current with the expanding capabilities of the organization, special efforts on continuous training must be expended. This was crucial to the continued successful realization of quality service to their customers.

- Establish an "action-oriented environment" using a Customer Service Division as a marketing tool to effectively communicate mission, vision, and goals. Familiarize those external to medical logistics with logistic processes and emphasize quality enhancement initiatives.

- Communication is essential. One strategy implemented at the board of directors level was monthly resource briefs. This meeting of the leaders of the institution provided an excellent opportunity for training and identified trends and positive progress. By the graphic representation of trended data, the board was able to not only visualize the progress of the implemented strategies, but make informed decisions based on rational data.

Conclusion

The above strategies may seem simplistic. However, the application and implementation of these strategies have caused a remarkable paradigm shift toward the positive. The most critical shift was the attitude of the Medical Logistics Department staff. Because of intense understanding of the processes and increased concern for quality customer service and support, the staff became quite comfortable with their new found knowledge and were able to implement inventory management with confidence and attentiveness to ensure rapid availability of service and supplies. The bottom line: internal process management.

Customer service is an all-inclusive responsibility. Each person within the department must believe

this, accept it, and be empowered to act on it. Our approach to the commitment to customer service is through our mission statement:

"To be the best Medical Logistics Department as measured by the quality of goods and services we provide to our customers and by our spirit of support."

Changes will continue as staff become involved in the process and learn that things are not permanent: Comprehensive medical logistics is a very dynamic process. The system will continuously improve the process of identifying and introducing new material management/logistical services and create a climate that fosters innovation and quality support.

Now that *our* medical logistic nightmares are over, the command has sweet dreams about its future. In cooperation with the pharmacy, the Medical Logistics Department has decentralized and placed supply clerks within the pharmacy to handle all medical material management issues: a strategy for quality for our future. New programs and commercial processes such as Prime Vendor, Europe and Medical Air Express (MEDEX) delivery program will be the future for medical logistics.

Just imagine . . . an overseas medical treatment facility with a stockless delivery system, optimal quality of care as a result of a responsive and proactive logistic system, and extremely satisfied customers . . . *Faith really can move mountains!* □

LT Anaya is assigned to the Contracts and Procurement Branch (MED-423), Bureau of Medicine and Surgery, Washington, DC. LT Wyrsh is in the Master of Health Care Administration Program, Baylor University, San Antonio, TX.

Naval Medical Information Management Center Highlights

●Composite Health Care System II (CHCS II) Begins

CHCS II represents the clinical aspects of the information management system. With a patient focus, CHCS II will capture, provide, and protect all health-related information needed to deliver health care to beneficiaries anywhere. CHCS II will work through a computerized patient record (CPR) that will integrate all relevant data into a single, logical, and transportable patient record. Phase one of CHCS II will be the Clinical Integrated Workstation (CIW) which is incorporating Provider Workstation (PWS), Inpatient Order Entry (IPOE), Clinical Information System (CIS), and Ambulatory Data Collection System (ADCS). CHCS will roll into CHCS II as the former reaches the end of its life cycle. Medical Digital Imaging System (MDIS) and other telemedicine applications will add further quality to patient care. CHCS II will be concerned with all peace-time and military family member care while offering comprehensive support for all military operations in the most forward locations by complying with TMIP-defined extensions of medical care in any operational theater. Managed care initiatives will be supported by providing by-directional access and input capabilities to providers under TRICARE contracts. Centered on the CPR, CHCS II will provide integration and interfaces with clinical systems and will result in the best quality care for each military medicine beneficiary.

●Computerized Patient Record (CPR)

CPR is a tool that allows ready access to individual patient information at the point of care. Initially, its scope can be the information contained in the paper record today, but can be expanded to include more image information as our understanding of the benefits grows with experience. The CPR will facilitate delivery of more effective care. Additionally, it will enable comprehensive coordination of all aspects of health service among the numerous professionals involved in serving patients today. Our providers can measure, and be accountable for, the success of their interventions. The CPR provides many significant gains:

(1) It automates health service work. The CPR will have the ability to gather and portray on a need-to-know basis all pertinent data about the patient. Not only are the patient's laboratory, pharmacy, and demographic data available, but also images, voice annotations, wave-forms (ECGs), X-rays, visual fields, and many other points of data unique to the patient. The CPR gives positive control over the handling of information by capturing, filing, retrieving, and delivering with little to no human intervention, except that required to keep the computer operating.

(2) It provides instant access to the chart on a need-to-know basis. With the CPR, information will be readily available and selectively organized. There will be a coherent representation of the patient's health status and health service

history and needs at any location the patient chooses to go for care. Since providers and patients will have access to all necessary information, it would no longer take 30 minutes to "flip" through the chart, now a necessary practice, but one fraught with uncertainty.

(3) It allows for flexible data entry. The technologies for keyboard entry already exist and voice, pen, specialized encounter forms, image capture, and others are maturing rapidly.

(4) It allows more accurate, complete coding of what is done. No longer is it "just a visit," whether it is a phone call or an all-day-long clinic visit. With the CPR, comprehensive ambulatory data collection will provide complete information about all diagnoses and procedures.

(5) The CPR will allow more standardization and higher quality through the use of clinical protocols, to establish baseline or institutional minimums and reminders to be met. All providers will have the latest information on validated treatments in front of them at the time of the patient encounter. Providers can choose interventions to assure that the protocols are tailored to the specific, unique needs of each patient. Our patients will benefit from the latest medical information regardless of the location of health service.

(6) The CPR will provide information for outcome measurement. This is crucial to evaluate and manage the clinical process, to identify and analyze variations in outcomes and in medical process. Certain clinical practices and procedures may be identified that provide the best outcome in terms of health and patient satisfaction.

(7) The CPR will provide the basis for better case management through integration of efforts by all health care professionals. With consistent, comprehensive information available to all members of the health care team, coordination is much easier to achieve. Additionally, special arrangements for complex cases are significantly enhanced since the patient doesn't "get lost in the paper shuffle."

(8) The CPR will allow significant decision support. With knowledge of coded procedures and diagnoses, it is possible to determine actual costs of care, i.e., patient-level accounting. It helps with make-vs.-buy decisions for health care and is crucial as a foundation for TRICARE.

There is no doubt that the CPR is crucial in order to move to the next plane of effectiveness and efficiency in health service delivery. The knowledge gained through access to information as well as the superb treatment and management decision-making capabilities that are provided make this a project that has tremendous value.

For more information on these and other NMIMC projects contact CAPT Paul Tibbits, MC, Commanding Officer, NMIMC, at Commercial 301-295-0590 or E-mail dsc0pat@imc210.med.navy.mil.

In Memoriam

On 16 May 1996 we lost our leader, ADM Jeremy "Mike" Boorda. Every member of the Navy family, both uniformed and civilian, has felt the loss and struggled with the question of why this terrible tragedy occurred. Those colleagues who knew him best eulogized the CNO at a memorial service held at the National Cathedral on 21 May 1996. Following is the text of the eulogy by Master Chief Petty Officer of the Navy ETCM(SW) John Hagan, and the statement by Surgeon General of the Navy VADM Harold M. Koenig, MC, read at a Bureau of Medicine and Surgery memorial service on 20 May 1996.

ETCM Hagan: I feel as if this is my last "All Hands" call with Admiral Boorda, and he has thrown me the mike one last time.

We are here to honor, to remember, to support one another in mourning, but even in the majesty and splendor of this shrine—in the midst of this illustrious assembly, we could not properly honor or remember if we were not joined by sailors all around the globe—on flight decks and hangar bays, fantails and fo'c's's'les, on piers and, of course, in every Navy chapel.

Today, and throughout the week, against backdrops as many and varied as the signal flags on a full-dress ship, with many voices, tears, and prayers we will together render the proper honors to our beloved CNO, Admiral Mike Boorda.

He was the leader we longed for and looked to. He came from among us and rose so high, always remembering the lonely, insecure, frightened recruit, which all of us are in the beginning, before we discover, as Admiral Boorda did, that the Navy is a family. Our family has lost a man of true worth.

The poet wrote:

*True worth is in being not seeming,
In doing, each day that goes by,*

*Some little good—not in dreaming
Of great things to do by and by.*

Our CNO went the point many times better. He did, each day, not a little but much good. And he worked each day on great things which became realities quicker than anyone could believe possible. And all the while he envisioned even greater things to do by and by and he shared them with sailors. We will long remember Admiral Boorda for many great achievements, but I pray today we also remember the details.

He didn't just shake a sailor's hand. He gripped and held it, and drew energy from the encounter even as he left the sailor an indelible, life-long memory of a moment with their CNO.

When the boatswain was finished piping, he always walked back through, shaking hands, patting shoulders, even exchanging high-fives and tousling the hair of the rainbow sideboys who lined his arrival at every ship we visited at sea.

He answered the same question as thoroughly and patiently at the end of the day as he did at the break of dawn, seven ship's and seven helo rides earlier.

At each stop listening, really listening. Standing on a destroyer flight deck, arm around a troubled sailor, personally and privately, counseling him—then worrying later and directing followup—making everyone feel special.

His schedule was so full, but he invariably found the time for one more sailor; never, ever, saying no.

He was and is, and will always be my hero!

It is rare and special when your hero is also your friend! Steinbeck wrote once of a fictional hero:

"This man drives himself and is driven. It is impossible to see how he can do so much, can cover so much ground, can work so hard and be so effective. There's a man. There is really a man."

Of Admiral Boorda, we all exclaim today, "There was a sailor. There really was a sailor."

Shipmates, a lot of work is well begun, and in the Boorda way of doing business "well begun is half done."

Our charge today is clear: Carry on. Lead with zeal, serve with pride, learn about and honor our heritage. And that will be the Admiral Boorda legacy and the only really fitting memorial. And with it will come the strength to carry on.

God bless you, Admiral Boorda. We love you and will forever miss you.

VADM Koenig: Last week we lost a great leader and a great supporter of Navy medicine. Our Chief of Naval Operations, Admiral Mike Boorda, was a dedicated Navy officer and a trusted colleague. He was an honorable man who ended his life by making the tragic choice of suicide. We cannot let his decision to end his life cloud our memory of his great career and years of unselfish service he gave to our country. We must learn from this sad occasion and always remember to reach out to each other when the pain of the moment seems overwhelming. In our Navy family, we must find ways to watch out for each other and prevent tragedies such as this. □



ADM Boorda with his sailors

Naval Medical Research and Development Command Highlights

●NMRDC Sponsors the First Medical Technology Initiatives Game

To meet readiness requirements, medical research and development products are an essential element in planning future Navy-Marine Corps operations. Wherever the fleet or Fleet Marine Forces go in the next century, Navy medical research and development will have already been there. This venture into the future, scheduled for August 1996, will begin with the first medical technology initiatives game played at the Navy War College, Newport, RI. This game is designed to provide realistic scenarios that center on new medical technology that may influence future readiness capabilities at the strategic, theater, and force levels. The game will feature two scenarios: a limited regional conflict and a humanitarian operation. Within these two scenarios—environmental threats (e.g., cold, heat, night operations), operational threats (e.g., chemical biological warfare, lasers, information war), and the handling and treatment of disease, nonbattle injuries, and combat casualties in the year 2015+ will be considered. The purpose of the technology initiatives game is to identify emergent medical technologies (e.g., telecommunications, expert systems, remote imaging systems, artificial intelligence, artificial blood, multivalent vaccines, CBW detectors) that will enhance operational readiness. The outcomes of the game will lead to a validation, understanding, and preservation of medical requirements within the requirements determination process of DON and DOD and an understanding of the negative consequences of failing to incorporate medical requirements in future operational planning.

●Triservice Ocular Study

Personnel in military and civilian occupational settings operate a vast array of microwave emitting devices. Considering the number and kind of devices in the Navy, Army, and Air Force and in the civilian sector, there is an increased risk of accidental exposure to microwave energy. The technological advances over the past 30 years have increased the output power of microwave emitters several-fold and have added to the exposure concern. Researchers representing the three services (Navy, Army, Air Force) at the Triservice Directed Energy Bioeffect Research Complex, Brooks AFB, San Antonio, TX, are focusing on this issue. The primary objective of a current

2-year study is to determine if time-averaged relatively low-power microwaves in the form of high-peak-power pulses will cause ocular damage. If the reported eye damage does occur at low-level microwave exposure the current DOD and civilian safety standards for microwave exposure of personnel will have to be reevaluated and could become more restrictive. Restrictive microwave standards can impact on military operational readiness by denying personnel access near high-power emitters.

●NBDL Assembles a Time Capsule

The Naval Biodynamics Laboratory (NBDL), New Orleans, LA, will close on 30 Sept 1996 following the recommendations by the 1995 Base Realignment and Closure (BRAC) Commission. For nearly three decades research on the mechanical forces encountered by military personnel has been the focus of the laboratory's efforts. The data from this research is used to determine human tolerance levels to these forces, to develop mathematical models, to improve test manikins, and to enhance human response to impact. Studies at the laboratory include use of a vertical accelerator which simulates aircrew ejections and a horizontal accelerator which simulates crashes. The ship motion simulator and a triaxial tilt/rotation chair with a visual affects device are used to study the effects of motion on performance. In anticipation of the closure the NBDL staff is creating a time capsule of the laboratory's memorabilia. The staff includes military and civilian scientists, engineers and technicians, and a cadre of sailors who have volunteered to be experimental subjects in the command's research programs. Examples of the capsule's contents include unique items ranging from mouth mounts (used for acceleration experiments), T-plates (devices that contain accelerometers and photo targets for tracking during impact acceleration), pelvic mounts (tracks impact), photographs (both scientific and special command events), official documents, technical reports, and Mardi Gras beads. The time capsule will be preserved by the Naval Historical center, Curator for the Navy, Washington, DC.

For more information on these and other research efforts contact Doris M. Ryan, Deputy Director, External Relations, at DSN 295-0815, Commercial 301-295-0815, FAX 301-295-4033, or E-mail ryand@mail-gw.nmrdc.nnmc.navy.mil.

Navy Medicine 1919



BUMED Archives

Pharmacy, Navy Department Dispensary, Washington, DC

DEPARTMENT OF THE NAVY
BUREAU OF MEDICINE AND SURGERY
ATTN: MED 09H
2300 E STREET NW
WASHINGTON DC 20372-5300

OFFICIAL BUSINESS

Periodical
Postage and Fees Paid
USN
USPS 316-070